

## Claims

1. A method for determining whether a patient will respond favorably to hyperbaric oxygen therapy treatment, the method comprising the steps of:
  - a. comparing nitric oxide production level in a specimen from a patient with a threshold value; and
  - b. determining if the patient will respond favorably to hyperbaric oxygen therapy treatment,wherein if the level of nitric oxide production in specimen from the patient is above the threshold value the patient will respond favorably to hyperbaric oxygen therapy treatment, and if the level of nitric oxide production in the specimen from the patient is approximately at or below the threshold value then the patient may not respond favorably to hyperbaric oxygen therapy treatment.
2. The method of claim 1, further comprising the step of: collecting the specimen from the patient.
3. The method of claim 1 wherein the specimen is urine.
4. The method of claim 1 wherein the specimen is blood.
5. The method of claim 1 wherein the specimen is wound fluid.
6. The method of claim 1 further comprising the step of treating the patient with hyperbaric oxygen.
7. The method of claim 6 wherein the step of treating the patient comprises treating the patient with multiple rounds of hyperbaric oxygen in a hyperbaric oxygen chamber.
8. The method of claim 6 wherein the level of nitric oxide production increases.
9. The method of claim 8 wherein the patient responds favorably to hyperbaric oxygen therapy treatment.
10. The method of claim 1 wherein the level of nitric oxide production is approximately at or below the threshold value.
11. The method of claim 10 further comprising the step of treating the patient with hyperbaric oxygen.
12. The method of claim 11 wherein the level of nitric oxide production increases 50% or more above pretreatment level.
13. A method for determining whether a patient will respond favorably to hyperbaric oxygen therapy treatment, the method comprising the steps of:

- a. comparing a nitric oxide-related product level in a specimen from a patient with a threshold value; and
- b. determining if the patient will respond favorably to hyperbaric oxygen therapy treatment,

wherein if the level of nitric oxide-related product in specimen from the patient is above the threshold value the patient will respond favorably to hyperbaric oxygen therapy treatment, and if the level of nitric oxide-related product in the specimen from the patient is approximately at or below the threshold value then the patient may not respond favorably to hyperbaric oxygen therapy treatment.

- 14. The method of claim 13 wherein the nitric oxide-related product is nitrate.
- 15. The method of claim 13 wherein the nitric oxide-related product is nitrite.
- 16. The method of claim 13, further comprising the step of: collecting the specimen from the patient.
- 17. The method of claim 13 wherein the specimen is urine.
- 18. The method of claim 13 wherein the specimen is blood.
- 19. The method of claim 13 wherein the specimen is wound fluid.
- 20. The method of claim 13 further comprising the step of treating the patient with hyperbaric oxygen therapy.
- 21. The method of claim 20 wherein the step of treating the patient comprises treating the patient with multiple rounds of hyperbaric oxygen therapy in a hyperbaric chamber.
- 22. The method of claim 21 wherein the level of the nitric oxide-related product increases.
- 23. The method of claim 13 wherein the level of the nitric oxide-related product is approximately at or below the threshold value.
- 24. The method of claim 23 further comprising the step of treating the patient with hyperbaric oxygen.
- 25. The method of claim 24 wherein the level of the nitric oxide-related product increases 50% or more above pretreatment levels.
- 26. A method for determining whether a patient will respond favorably to hyperbaric oxygen therapy treatment, the method comprising the steps of:
  - a. comparing a nitric oxide bioavailability index value in a specimen from a patient with a threshold value; and

- b. determining if the patient will respond favorably to hyperbaric oxygen therapy treatment,

wherein the nitric oxide bioactivity index is defined as the level of a nitric oxide-related product divided by the level of an oxidant stress related product in the specimen,

wherein if the value of the nitric oxide bioactivity index in specimen from the patient is above the threshold value the patient will respond favorably to hyperbaric oxygen therapy treatment, and if the value of the nitric oxide bioavailability index in the specimen from the patient is approximately at or below the threshold value then the patient may not respond favorably to hyperbaric oxygen therapy treatment.

- 27. A method for determining whether a patient will respond favorably to hyperbaric oxygen therapy treatment, the method comprising the steps of:

- a. comparing a nitric oxide bioavailability index value in a specimen from a patient with a threshold value; and
- b. determining if the patient will respond favorably to hyperbaric oxygen therapy treatment,

wherein the nitric oxide bioactivity index is defined as the level of an oxidant stress related product divided by the level of a nitric oxide-related product in the specimen,

wherein if the value of the nitric oxide bioactivity index in specimen from the patient is below the threshold value the patient will respond favorably to hyperbaric oxygen therapy treatment, and if the value of the nitric oxide bioavailability index in the specimen from the patient is approximately at or above the threshold value then the patient may not respond favorably to hyperbaric oxygen therapy treatment.

- 28. The method of claim 26 or 27, further comprising the step of determining the level of a nitric oxide-related product in the specimen.
- 29. The method of claim 26 or 27, further comprising the step of determining the level of an oxidant stress related product in the specimen.
- 30. The method of claim 26 or 27, further comprising the step of: collecting the specimen.
- 31. The method of claim 26 or 27 wherein the specimen is urine.
- 32. The method of claim 26 or 27 wherein the specimen is blood.
- 33. The method of claim 26 or 27 wherein the specimen is wound fluid.

34. A kit for determining whether a patient will respond favorably to hyperbaric oxygen therapy treatment, the kit comprises either
- (1) one or more reagents for determining the level nitric oxide production in a specimen from the patient,
  - (2) one or more reagents for determining the level of a nitric-oxide-related product in the specimen from the patient, or
  - (3) one or more reagents for determining the level of an oxidant stress related product in the specimen and one or more reagents for determining the level of a nitric-oxide-related product in the specimen from the patient.